APPROVED: /A.A./

Figure 1

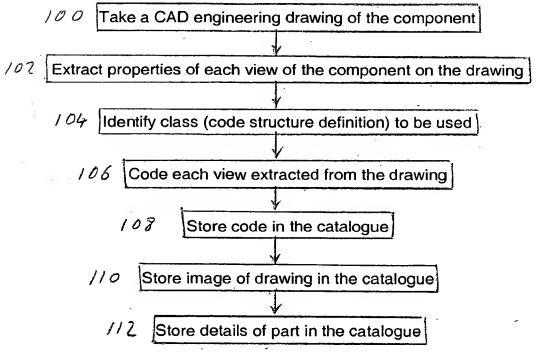

Figure 2

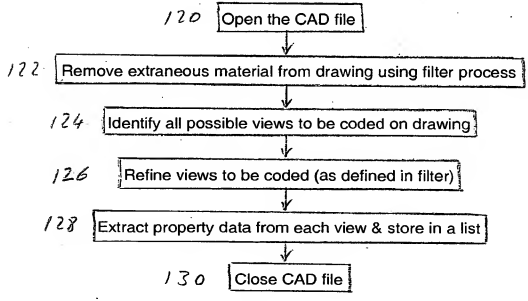

Figure 3

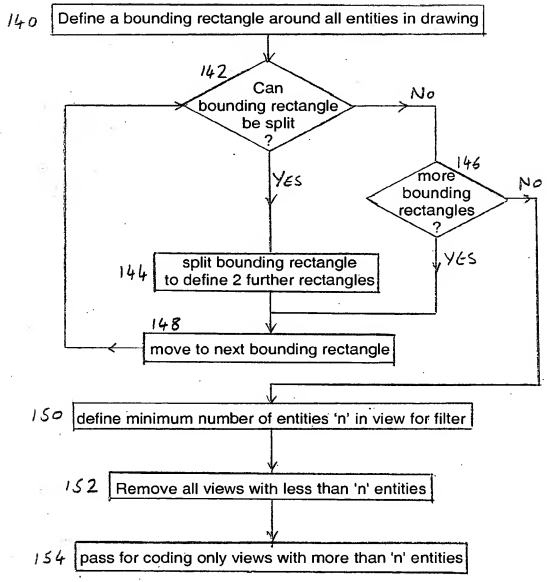
140
Define a bounding rectangle around all entities in drawing
142
Can bounding rectangle be split ?
No
Yes
146
more bounding rectangles ?
No
YES
144
split bounding rectangle to define 2 further rectangles
148
move to next bounding rectangle
150
define minimum number of entities 'n' in view for filter
152
Remove all views with less than 'n' entities
154
pass for coding only views with more than 'n' entities

Figure 4

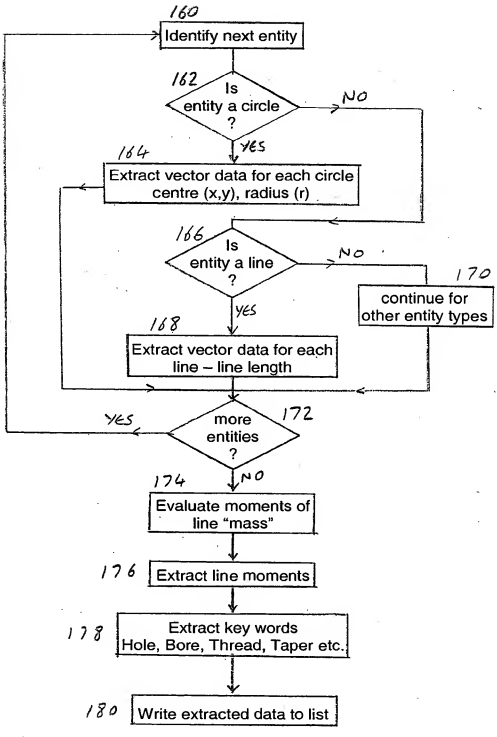
160
Identify next entity
162
Is entity a circle ?
NO
YES
164
Extract vector data for each circle centre (x,y), radius (r)
166
Is entity a line ?
NO
170
continue for other entity types
YES
168
Extract vector data for each line – line length
172
more entities ?
YES
NO
174
Evaluate moments of line "mass"
176
Extract line moments
178
Extract key words Hole, Bore, Thread, Taper etc.
180
Write extracted data to list

Figure 5

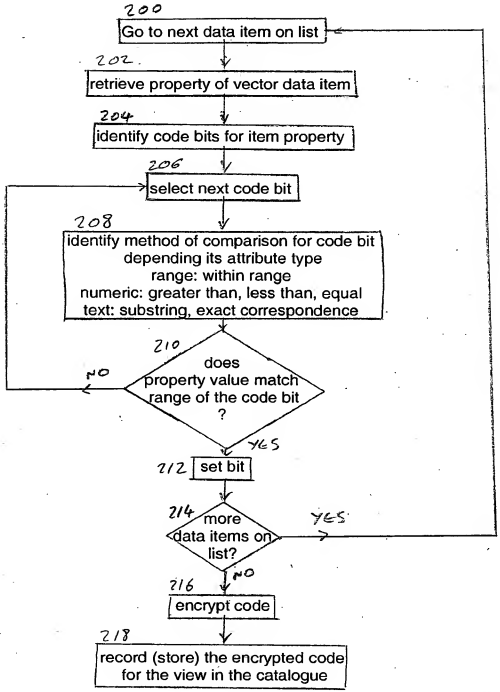
200
Go to next data item on list
202
retrieve property of vector data item
204
identify code bits for item property
206
select next code bit
208
identify method of comparison for code bit depending its attribute type
range: within range
numeric: greater than, less than, equal
text: substring, exact correspondence
210
does property value match range of the code bit ?
NO
YES
212
set bit
214
more data items on list?
YES
NO
216
encrypt code
218
record (store) the encrypted code for the view in the catalogue

Figure 6.

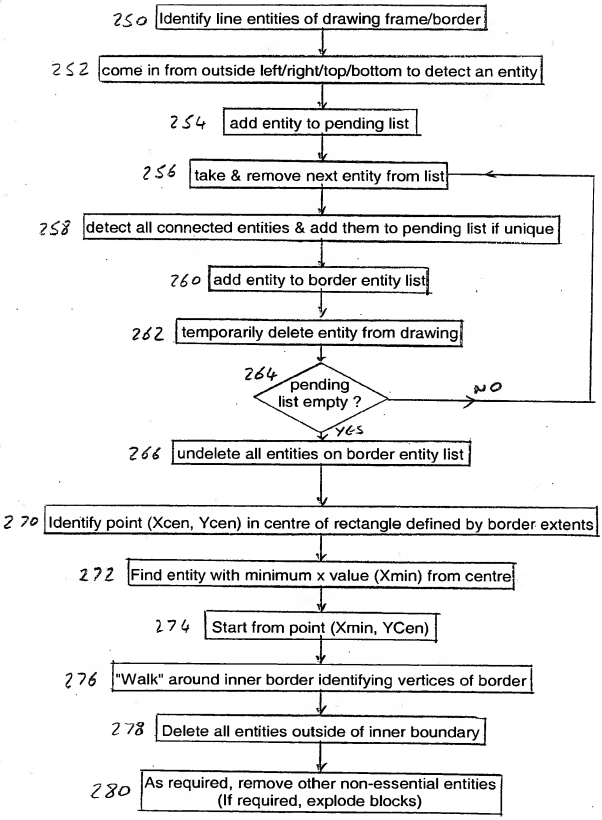
250 Identify line entities of drawing frame/border
252 come in from outside left/right/top/bottom to detect an entity
254 add entity to pending list
256 take & remove next entity from list
258 detect all connected entities & add them to pending list if unique
260 add entity to border entity list
262 temporarily delete entity from drawing
264 pending list empty ?
NO
YES
266 undelete all entities on border entity list
270 Identify point (Xcen, Ycen) in centre of rectangle defined by border extents
272 Find entity with minimum x value (Xmin) from centre
274 Start from point (Xmin, YCen)
276 "Walk" around inner border identifying vertices of border
278 Delete all entities outside of inner boundary
280 As required, remove other non-essential entities (If required, explode blocks)

Figure 7.

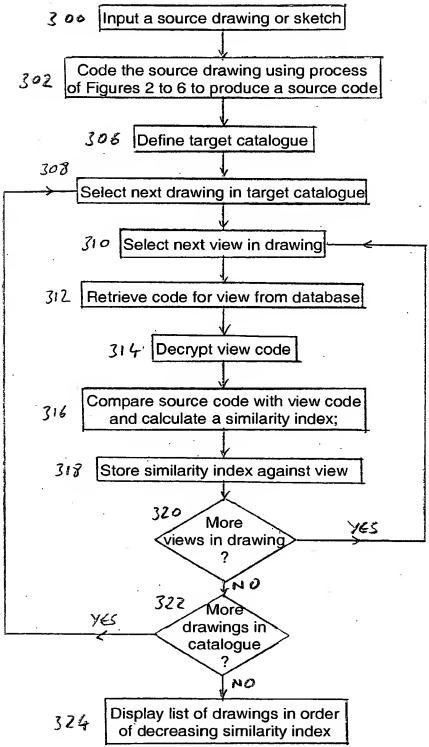
300
Input a source drawing or sketch
302
Code the source drawing using process of Figures 2 to 6 to produce a source code
306
Define target catalogue
308
Select next drawing in target catalogue
310
Select next view in drawing
312
Retrieve code for view from database
314
Decrypt view code
316
Compare source code with view code and calculate a similarity index;
318
Store similarity index against view
320
More views in drawing ?
YES
NO
322
More drawings in catalogue ?
YES
NO
324
Display list of drawings in order of decreasing similarity index

Figure 8.

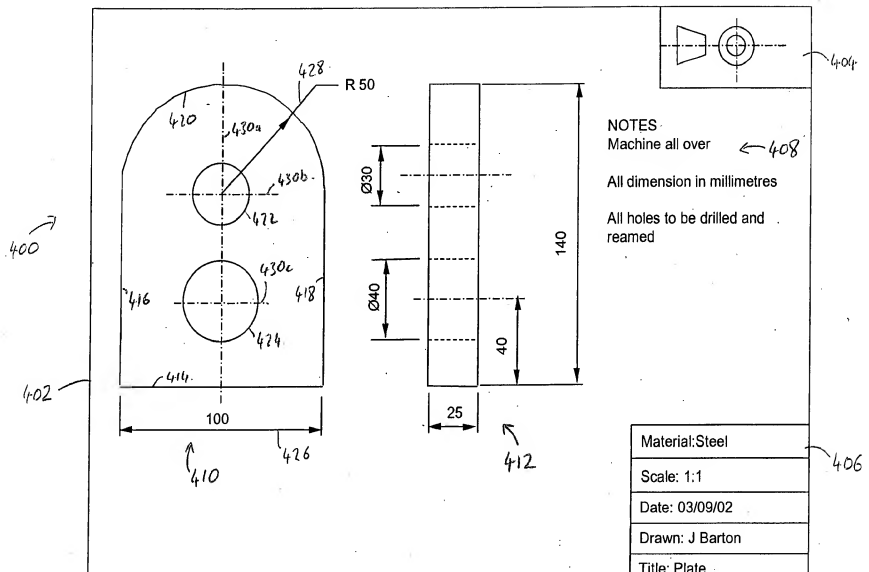
400
402
404
406
408
410
412
414
416
418
420
422
424
426
428
430a
430b
430c
R 50
Ø30
Ø40
140
40
100
25
NOTES
Machine all over
All dimension in millimetres
All holes to be drilled and reamed
Material:Steel
Scale: 1:1
Date: 03/09/02
Drawn: J Barton
Title: Plate

Figure 9a

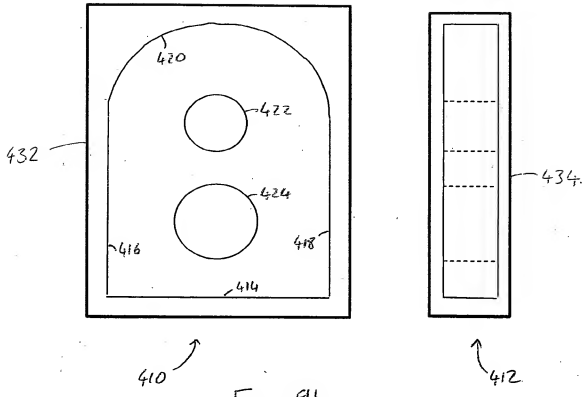

Figure 9b

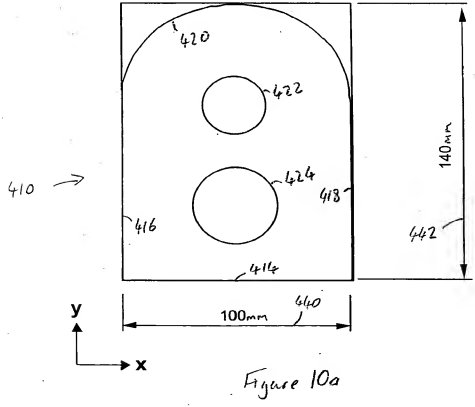

Figure 10a

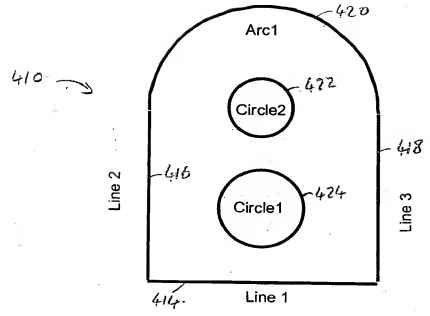

Figure 10b

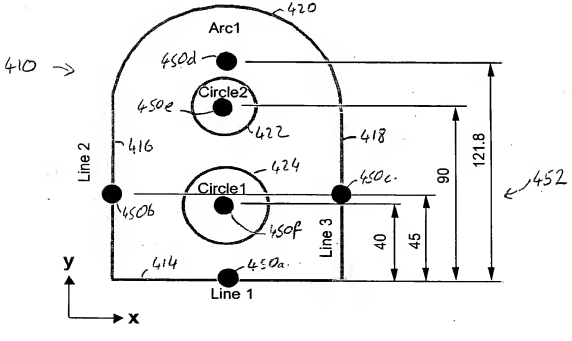

Figure 10c

Part 1 code =	1	0	1	0	1	0	
Part 2 code =	1	1	1	0	0	0	
Part 3 code =	1	0	1	0	1	1	

Figure 11.